

TRANSMISSION TIMES



Welcome!

Welcome to the first issue of the Transmission Times, our new quarterly publication. Here at PSSI Global Services, we are constantly expanding our capabilities, improving our technology and helping our clients tackle new broadcasting challenges. The Transmission Times is our way of sharing these exciting happenings, giving you a chance to get to know our team, and helping you stay up to date on opportunities to take your broadcasts to the next level.

Thanks for reading!



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PSSI²
Global Services

Partnering With AT&T to Offer You More

Through our growing relationship with AT&T, we are finding new ways to expand our offerings. Our ability to offer combined transmission platforms continues to evolve, and we are enhancing our data services, as well.

PSSI International Teleport (PIT) is now fully in-network with AT&T, which means we can utilize AT&T's expansive fiber network to offer worldwide connectivity through PIT.

Our partnership with AT&T's Global Video Service also means we can bring connectivity directly to you. Our satellite uplink trucks are being equipped with media-over-IP transport infrastructure that allows us to tap into AT&T hubs across the country, so we can send your signal directly from our trucks to destinations around the globe via AT&T's global video network.

With these expanded capabilities as a foundation, we are offering a new, blended service called Saber. The Saber solution combines satellite and fiber transmission methods in a single uplink truck, providing AT&T's hitless global video service with a satellite backbone. Saber is redundant across the different platforms, ensuring the integrity of your broadcast.

PSSI²
SABER





March Madness

There's no amount of madness the PSSI Global Services and News Group teams can't handle, especially when it's March Madness! This year, we once again provided extensive transmission services for all the press conferences, interviews and games throughout the month.

Here's a look at where our March Madness work on behalf of CBS, CNN and Hammond Communications has taken us:

We're thrilled to be celebrating another year of seamless March Madness coverage, and we can't wait to do it again in 2019!

First Round

- UD Arena in Dayton, Ohio
- Intrust Bank Arena in Wichita, Kansas
- Bridgestone Arena in Nashville, Tennessee
- Little Caesars Arena in Detroit, Michigan
- American Airlines Center in Dallas, Texas
- Spectrum Center in Charlotte, North Carolina
- PPG Paints Arena in Pittsburgh, Pennsylvania
- Viejas Arena in San Diego, California
- Taco Bell Arena in Boise, Idaho

Second Round

- Philips Arena in Atlanta, Georgia
- Staples Center in Los Angeles, California
- TD Garden in Boston, Massachusetts
- CenturyLink Center Omaha in Omaha, Nebraska

Women's Final Four

Nationwide Arena in Columbus, Ohio

Final Four

Alamodome in San Antonio, Texas (It's not every day we have three trucks — including two C/Ku dual-antenna trucks with large-aperture C-band antennas — in the same place. But Final Four coverage warrants nothing short of the finest trucks in the country, so we brought K26, CK36, CK48 and NT26 along for the ride.)



Introducing PSSI News Group

Breaking news! In 2017, PSSI Global Services proudly established PSSI News Group, which handles all U.S. domestic CNN satellite transmission services. We have added 12 highly skilled senior engineers to our staff, and together, the PSSI News Group team provides extensive transmission services for CNN's coverage of major weather events, sports and entertainment stories, press conferences, and beyond.

We are also working with Frontline Communications to build 12 state-of-the-art uplink trucks to support our News Group projects. As we continue to add these new trucks to the fleet, the former CNN trucks then become a part of the ever-expanding PSSI Global Services fleet.

Achieving Unprecedented Broadcast Transmission Feats

"Live broadcasting projects are becoming increasingly complex, and we've made it our mission to deliver seamless solutions for every challenge. We're not afraid to go where no one has gone before, and we're proud that our efforts continue to create new possibilities in live television."

– **Rick Ball**, Director of Broadcast Sports, PSSI Global Services.

The PSSI Global Services team is thrilled to share that we recently performed not one, but two, groundbreaking transmissions.

For NASCAR's Rolex 24 at Daytona, we successfully executed the largest "at-home" transmission in broadcast history. The record-setting transmission included a total of 28 video paths and 75 audio paths for 32 consecutive hours. We transmitted all 28 video paths to NASCAR's production facility in Charlotte, North Carolina, using a single antenna, one transmitter and two transponders. We also simultaneously delivered all 28 paths via AT&T fiber for redundancy.

Our other noteworthy transmission was executed for ESPN's historic broadcast of the College Football Playoff National Championship — a 125-camera broadcast watched by approximately 27.5 million viewers. For this project, we successfully transmitted 500 megabits of data out of just one antenna, two transmitters and three transponders — something that has never before been achieved.

We leveraged our C27 mobile teleport, equipped with cutting-edge Newtec modulators and GaN SSPB amplifiers from Advantech Wireless, for both of these projects.



Did You Know?

In addition to providing transmission services for Fox Sports, CBS and ESPN throughout the 2017 college football season — including several 4K projects — the PSSI Global Services team was also on-site for a variety of bowl games. Here's a list of the bowl games we had the honor of covering this past season:

- Gildan New Mexico Bowl
- Boca Raton Bowl
- Frisco Bowl
- Bad Boy Mowers Gasparilla Bowl
- Famous Idaho Potato Bowl
- Birmingham Bowl
- Armed Forces Bowl
- Hawaii Bowl
- Heart of Dallas Bowl
- Quick Lane Bowl
- Independence Bowl
- Military Bowl
- Belk Bowl
- Cotton Bowl
- Fiesta Bowl
- Rose Bowl
- Sugar Bowl
- National Championship

Golf, Golf and More Golf

For the past several years, there's been plenty of golf on our schedule — and we're excited to announce that there will be no shortage of golf in our future. As of Jan. 1, 2018, PSSI Global Services' renewed contract with Golf Channel takes effect, continuing our role as the exclusive transmission solutions provider for Golf Channel's tournament coverage, news, road show events and majors coverage.

We've been working with Golf Channel for many years as their exclusive transmission services provider. Every year we've provided uplink and/or fiber encoding services for approximately 135 Golf Channel events.

We look forward to continuing this fantastic partnership for years to come!





Taking PIT to New Heights

Not only is PIT now fully in network with AT&T, but we've also been making tons of other exciting improvements. Here's a look at just a few of our recent upgrades:

- Three updated quality control stations (each is equipped to monitor and manage several simultaneous HD and UHD/4K transmissions).
- Installation of a 512 X 512 Trinitex router capable of routing SDI and ASI throughout the facility.
- Eutelsat 113 space segment access of five transponders via our Network Operations Center that have already proven handy for ESPN and NASCAR coverage.
- Installation of an AT&T Medialink system with multiple optical and copper inputs and outputs. Delivery can be ASI, SDI or JPEG 2000. (We have already provided services for NASCAR, the Grammys and MLS to name a few.)
- Upgrade of several DVB modulators, satellite IP modems and upconverters to handle increased uplink requirements.
- Addition of six new ATEME Kyrion 5000 encoders at PIT and the PSSI Videotech Center for improved satellite broadcast and LTN services.

Through these technology updates and our partnership with AT&T, PIT is now able to offer an expanded range of services, broader reach around the world, support for a wider variety of projects and even better quality control than ever before.

A Job for Goliath

"When we asked the PSSI team to design a custom transmission rack, I knew it would be a thing of beauty. When you're encoding 14 concurrent feeds, inserting captioning on five of them, and then multiplexing for transmission on both satellite and fiber, it's difficult to maintain full redundancy, but this system did just that. We couldn't have been happier with the result, and the folks at Blizzard were very pleased as well."

– **Mark East**, CEO of 090 Media



PSSI Global Services developed a custom encoding and multiplexing kit for BlizzCon 2017, a major videogame conference in Anaheim that attracted more than 35,000 attendees. Known as Goliath, the encoding system is capable of supporting an 18-channel mux. In this case, we used the system to deliver 14 paths via both fiber and satellite for simultaneous, redundant distribution of primary and backup transmissions.

Along with offering a single solution for simultaneous, multipath satellite transmissions, Goliath leverages IP data transmission — in addition to ASI — to provide a more flexible, user-friendly platform. The use of IP routing allows for a single Ethernet connection that can carry a virtually limitless amount of data, versus the more limited connectivity of traditional ASI transmission. IP also offers a means of making adjustments to service channels remotely, whereas ASI requires someone to go to the equipment and physically move the cables if adjustments are necessary.

The system's IP capabilities and capacity for extensive multichannel transmissions make it a truly transformative innovation in broadcast engineering — and we're already looking for ways to continue expanding and improving the technology.



Wishing Dave Feustel a Happy Retirement

"Dave is going to retire from this uplinking world after approximately 23 years with our company, and I can think of no one who deserves it more. It has been such a pleasure working with Dave ... Dave, thank you for all that you have done for me and our team at PSSI. We wish you all the very best in retirement."

— Rob Lamb

After a long, successful career in the industry — including more than two decades on the PSSI Global Services team — Dave Feustel retired at the end of December. He will be dearly missed, and the impact he had on our company and industry will always be remembered and appreciated. We wish Dave the greatest happiness in his adventures to come, and as we send him off, we thought it only fitting to share a few things you might not know about this one-of-a-kind, talented, hard-working man.

How long have you worked for PSSI Global Services?

I've been with PSSI for about 23 years. When I first started, we only had four trucks.

What did you do before you joined the company?

My broadcasting career started at Pacific Bell. From there, I took a role as an RF engineer for Versatile Video, freelanced with Video Star and worked for Compact Video, where I met Chuck Storlie and Rob Lamb. A while later, I contacted Chuck to see if PSSI needed a truck operator, and they brought me on board. My first gig was a tennis match at UCLA — and the rest is history.

What regions were most of your PSSI Global Services projects based in?

I'm a Northern California guy, based in the San Francisco Bay Area. I usually covered projects from Fresno, California, up to Oregon, or occasionally as far as Seattle, Washington.

What are some of the most memorable jobs you've done with PSSI Global Services?

I've really enjoyed the military ops I've gotten to work on — for example, missile launches and the telemetry projects we've done with the Predator aircraft. I also really enjoyed anything scientific, like the Apple keynotes.

Tell us about your family.

I have two sons and a daughter. Both of my sons are married, and I have eight grandkids ranging in age from 22 to 3. My 9-year-old grandson loves sitting in the uplink truck, so maybe we have a future engineer on our hands!

What are you looking forward to doing in retirement?

I've been thinking about going back to school, and maybe getting my drone pilot's license. I want to stay active and involved in the industry, and I'd still like to help the PSSI team out from time to time if an extra pair of hands is needed.

What will you miss the most about PSSI Global Services?

I'll miss the people. PSSI is a great company to work for — good management and a good team. I'll miss my colleagues in the Bay Area and all the local clients and vendors I've built friendships with. And I'll miss the work. I know when I see a news feed, I'll think about how I could have been there. Before I leave, the last thing I'm going to do is say goodbye to my truck. After all this time, the truck really becomes a part of you — I like to say you become one with the truck. Just by the feel of it when I turn it on, I can tell if anything isn't right. I'm going to miss that too.